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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LE, HUYEN D

ART UNIT

PAPER NUMBER

2614

MAIL DATE

DELIVERY MODE

05/26/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/533,632	Applicant(s) TAKASE ET AL.	
	Examiner HUYEN D. LE	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>figures 1, 2 and 16-18</u> . |

DETAILED ACTION

Drawings

1. The drawings were received on 02/12/09. These drawings are approved.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 4-7 are rejected under 35 U.S.C. 102(b) as being anticipated by the prior art (figures 16, 17 and 18) as admitted by the Applicant.

Regarding claims 1 and 4, as broadly claimed, the admitted prior art teaches a loudspeaker a magnetic circuit (4, 104) having a magnetic gap (5, 105), a frame (6, 106), a voice coil (8, 108) having a first end and a second end, and a diaphragm (7, the diaphragm 107 made of a resin film), wherein the diaphragm has a first portion (the dome portion of the diaphragm 107) being provided inside the voice coil (108) and a second portion (the outer shape of the diaphragm 107) being provided outside the voice coil (108).

The first portion inside the voice coil and the second portion outside the voice coil of the diaphragm have a cross section in a plane including a center axis (figure 18), wherein the cross section of the second portion of the diaphragm (the outer shape of the diaphragm 107, figure 18) is shaped as an arc of a non-circular ellipse as claimed (page 2, lines 8-10 in the specification of the present invention).

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Regarding claim 5, the admitted prior art shows the diaphragm that has a guide coupled with the second end of the coil (8, 108, figures 16, 18).

Regarding claim 6, the admitted prior art shows the diaphragm that has a groove to which the second end of the coil (8, 108) is inserted (figures 16, 18).

Regarding claim 7, as broadly claimed, the first portion of the diaphragm (7, 107) has a dent (107A) formed therein.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1 (as interpreted in a different manner) and 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art (figures 16, 17 and 18) as admitted by the Applicant.

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Regarding claims 1 and 3, as interpreted in a different manner, the admitted prior art teaches a loudspeaker a magnetic circuit (4, 104) having a magnetic gap (5, 105), a frame (6, 106), a voice coil (8, 108) having a first end and a second end, a diaphragm (7, the diaphragm 107 made of a resin film), wherein the diaphragm has a first portion (the dome portion of the diaphragm 107) being provided inside the voice coil (108) and a second portion (the outer shape of the diaphragm 107) being provided outside the voice coil (108).

The first portion inside the voice coil and the second portion outside the voice coil of the diaphragm have a cross section in a plane including a center axis (figure 18), wherein the cross section of the second portion of the diaphragm (the outer shape of the diaphragm 107, figure 18) is shaped as an arc of a non-circular ellipse as claimed (page 2, lines 8-10 in the specification of the present invention).

The admitted prior art does not specifically disclose that the cross section of the first portion of the diaphragm is shaped as an arc of a non-circular elliptic as claimed. However, the admitted prior art does estimate an elliptical shape for the diaphragm (107, col. 2, lines 8-10) and providing the diaphragms having longitudinal direction such as ellipse shapes or oval shapes for the types of small, slim the loudspeakers is well known in the art (page 2, lines 24-27 in the specification of the present invention).

Therefore, it would have been obvious to one skilled in the art to provide any shape or arc for the cross section of the first portion of the elliptical diaphragm (7, 107) such as the shape of an arc of non-circular ellipse for the same desired purpose of better providing an elliptical shape for the diaphragm, depending on the applications and the desired frequency characteristics (also see page 2, lines 13-27 in the specification of the present invention).

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Regarding claim 2, the admitted prior art does not specifically disclose the third portion and the fourth portion as claimed. However, the admitted prior art does estimate an elliptical shape for the diaphragm (107, col. 2, lines 8-10) and providing the diaphragms having longitudinal direction such as ellipse shapes or oval shapes for the types of small, slim the loudspeakers is well known in the art (page 2, lines 24-27 in the specification of the present invention).

Therefore, it would have been obvious to one skilled in the art to provide any shape or arc in the cross section of the first portion (inside the voice coil) of the elliptical diaphragm (7, 107) such as providing a third portion of the first portion (or the second portion) including a first arc and a fourth portion of the first portion (or the second portion) including a second arc, wherein the second arc has a radius which is larger than a radius of the first arc for the same desired purpose of better providing an elliptical shape for the diaphragm and depending on the desired frequency characteristics of the loudspeakers (also see page 2, lines 13-27 in the specification of the present invention).

Response to Arguments

6. Applicant's arguments filed 02/12/09 have been fully considered but they are not persuasive.

Responding to the arguments about the limitation of the cross section of the one of the first portion and second portion of the diaphragm that is shaped as an arc of a non-circular ellipse in claim 1, the examiner has explained in detail in the Office Action. The admitted prior art shows the first portion inside the voice coil (108) and the second portion outside the voice coil

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(108) of the diaphragm that have a cross section in a plane including a center axis (figure 18), wherein the cross section of the second portion of the diaphragm (the outer shape of the diaphragm 107, figure 18) is shaped as an arc of a non-circular ellipse as claimed (page 2, lines 8-10 in the specification of the present invention).

As interpreted in a different manner, the admitted prior art does not specifically disclose that the cross section of the first portion of the diaphragm is shaped as an arc of a non-circular elliptic as claimed. However, the admitted prior art does estimate an elliptical shape for the diaphragm (107, col. 2, lines 8-10) and providing the diaphragms having longitudinal direction such as ellipse shapes or oval shapes for the types of small, slim the loudspeakers is well known in the art (page 2, lines 24-27 in the specification of the present invention).

Therefore, it would have been obvious to one skilled in the art to provide any shape or arc for the cross section of the first portion of the elliptical diaphragm (7, 107) such as the shape of an arc of non-circular ellipse for the same desired purpose of better providing an elliptical shape for the diaphragm and depending on the desired frequency characteristics of the loudspeakers (also see page 2, lines 13-27 in the specification of the present invention).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUYEN D. LE whose telephone number is (571) 272-7502. The examiner can normally be reached on 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CURTIS KUNTZ can be reached on (571) 272-7499. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HUYEN D. LE/
Primary Examiner, Art Unit 2614

HL
May 24, 2009

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